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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,641	08/21/2003	Joseph Mazzochette	14123-17	8797

7590 10/31/2005

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EXAMINER

JONES, STEPHEN E

ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/645,641

Applicant(s)

MAZZOCHETTE ET AL.

Examiner

Stephen E. Jones

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/15/05.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

The restriction requirement is deemed moot since all of the remaining claims read on the elected invention/species.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Lombardi et al. of record for the reasons of record.

Lombardi (Figs. 1-3) teaches an RF circulator (i.e. a nonreciprocal device) including: LTTC layers with steel ground layers on the outer surface (i.e. LTTC-M); a ferrite disk (14) is in the ceramic layers and a stripline conductor junction has three ports (e.g. see Fig. 1B) (Claim 3); a magnet is positioned on the substrate (e.g. see Fig. 3); and inherently the steel ground layers (i.e. a ferrous base plate) acts as a magnetic return path for the device to function properly (Claim 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lombardi et al. (of record) in view of Applicant's admitted prior art Figs. 1-2, for the reasons of record.

Lombardi teaches a stripline circulator as described above. However, Lombardi does not explicitly teach that the stripline conductor junction can be alternatively formed as a microstrip.

Applicant's admitted prior art (AAPA) teaches that circulator conductors can be formed as either a microstrip (Fig. 2) or a stripline (Fig. 1).

It would have been considered obvious to one of ordinary skill in the art to have modified the Lombardi circulator conductors to have been microstrip instead of stripline, because it would have been considered a mere substitution of well-known art-recognized equivalent conductor means for a circulator (such as suggested by AAPA).

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lombardi et al. in view of Jachowski (both of record) for the reasons of record.

Lombardi teaches a circulator as described above, but does not explicitly teach terminating one port to form an isolator.

Jachowski shows the well-known concept of terminating a port of a circulator (Fig. 2) to form an isolator.

It would have been considered obvious to one of ordinary skill in the art to have provided a terminating resistor at one port such as taught by Jachowski in the Lombardi circulator, because it would have provided the advantageous benefit of converting the circulator into an isolator which is an effective solution for transmitter intermodulation (e.g. see Jachowski Col. 2, lines 33-58).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lombardi et al. in view of Onyskevych et al. (both of record) for the reasons of record.

Lombardi teaches a circulator as described above. However, Lombardi does not explicitly teach that the circulator is hermetically sealed.

Onyskevych teaches that hermetic enclosures are particularly easy and inexpensive to achieve with LTCC-M technology.

It would have been considered obvious to one of ordinary skill in the art to have included hermetic sealing such as taught by Onyskevych to the Lombardi LTCC device, because it would have provided the advantageous benefit of an easy to achieve and inexpensive means for providing device protection from external elements, thereby suggesting the obviousness of such a modification.

Response to Arguments

8. Applicant's arguments filed 8/15/05 have been fully considered but they are not persuasive.

Applicant argues that nothing in Lombardi suggests that the steel plates are used in the manufacturing process as support structures for green tape layers during the co-firing process. Applicant also argues that Lombardi teaches away from the use of LTCC-M substrate since Lombardi teaches that any magnetically responsive material can be used in place of the steel.

Applicant's argument regarding the manufacturing process is not convincing, especially since only the final product structure is patentable in an apparatus claim. The final product Lombardi structure includes ceramic and metal layers in the same manner as the final product structure that is not different in the final product form. Also, inherently the steel plate of Lombardi would provide some support since steel has a fundamental rigidity characteristic which thus provides some support to the structure

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since the layers are contacting each other. Furthermore, Applicant's argument that Lombardi is teaching away from LTCC-M is not persuasive, especially since Lombardi does not teach that the magnetically responsive material is not metal and cannot be formed in an LTCC-M process (i.e. Lombardi does not teach away from LTCC-M).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

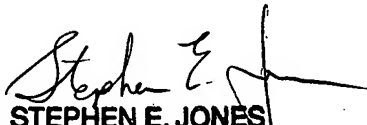
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen E. Jones whose telephone number is 571-272-1762. The examiner can normally be reached on Monday through Friday from 9 AM to 5 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SEJ


STEPHEN E. JONES
PRIMARY EXAMINER